Achieving These Milestones Is Crucial For Placement Success

1. Soft Skills (Quite Important Apart From the Technical Expertise)

- **Confident Communication:** Ability to articulate complex ideas clearly and present professionally.
- **Clear Pronunciation:** Actively work to resolve Mother Tongue Influence (MTI) for clear, professional speech.

Technical & Portfolio Readiness

- **IT Conceptual Clarity:** Strong grasp of core IT/CS fundamentals.
- **Programming Proficiency:** Good command and practical application in one or more programming languages.
- **Niche Skill:** Specialized expertise in at least one technical domain.
- **Certification:** Acquire relevant industry certifications.
- **Projects:** Complete a minimum of **two substantial projects**.
- **Digital Footprint:** Maintain a comprehensive, professional presence (LinkedIn, GitHub, StackOverflow, LeetCode, etc.).

2. Placement Oriented Courses

1. **C Programming**
2. **C++**

3. **Programming in Python**
4. **Programming in JAVA**
5. **Object Oriented Programming**
6. **HTML** (Basic web presentation layer)
7. **Data Structures and Algorithms**
8. **Design and Analysis of Algorithms**
9. **Operating Systems**
10. **Computer Organization & Architecture**
11. **Software Engineering**
12. **Database Management System (DBMS)**
13. **Computer Networks / Cloud Computing**
14. **Cybersecurity** (Advanced/Specialized)
15. **Generative Artificial Intelligence** (Advanced/Specialized)

3. Important Topics

Programming:

C++	**Java**
Introduction and Basic I/O	**Introduction and Basic I/O**
Variables	**Variables**
Operators	**Operators**
Loops	**Loops**
Arrays	**Arrays**
String	**String**
Functions	**Immutable Strings**
Pointers	**ArrayList**
Dynamic Memory Allocation	**BigInteger**
Object Oriented Programming	
Classes and Objects	

Inheritance and Polymorphism : Overloading and Overriding
Abstraction and Encapsulation
Access Modifiers
Friend and Virtual functions in C++
static, final, this and super keywords and Interfaces in Java

Operating System

- Operating System and its Types
- Multiprogramming, Multiprocessing, Multithreading
- Process Management
- Process Scheduling
- Inter-process communication.
- Multi-threaded programming.
- Process Synchronization.
- Deadlock
- Deadlock Recovery
- Memory Management
- Virtual Memory

Database Management System

- Introduction to DBMS
- Architectures
- ER Model
- Relational Model
- Keys in Relational Model
- Database Normalization
- Normal Forms
- Concurrency Control
- Indexing in Database
- B+ Tree Introduction
- SQL

Computer Networks:

- Introduction to Computer Networks
- Transmission Modes
- Network Topologies
- TCP/IP vs OSI Model
- Circuit Switching vs Packet Switching
- Flow Control Protocols
- Error Detection
- IP and Classful Addressing
- Classless Addressing

- IPv4 vs IPv6
- Routing Protocols
- ARP & Reverse ARP
- Transport Layer
- TCP & UDP
- Application Layer

Data Structures and Algorithms:

- Basic Recursion
- **Arrays:** Searching, Sorting, Deleting, Shift, Rotation, Prefix Sum...
- **Bit Magic**
- **Matrix:** Search, Delete, Insert, Rotate...
- **Searching:** Linear Search, Binary Search, Two pointer approach...
- **Sorting:** QuickSort and its variation, Mergesort, Counting sort, Insertion Sort, Heap Sort, Comparator
- **Hashing:** Different Types of Hashing Techniques, Collision resolution Techniques, Hashing Questions
- **Strings:** Basic Operations, Naive Pattern Search, Other searching algorithms.
- **Linked Lists:** Singly Linked List, Doubly Linked Lists, Circular Linked List, Skip List, Doubly Circular
- **Stacks:** Stack Operations, Implementation, Different Questions
- **Queues:** Queue Operations, Implementation, Different Questions, Deque Operations, Implementation, Different Questions.
- **Tree:** Binary Tree, Tree Traversal
- **Binary Search Tree:** Search, Insert, Delete and other important questions, AVL (Basic Introduction)
- **Heaps:** Binary Heap, Questions based on heaps.

- **Graphs:** Types of Graphs, BFS, DFS, Cycle Detection, Connected Components, Bipartite Graph
- **Recursion and Backtracking:** Backtracking questions, n queen, rat, knight etc.
- **Dynamic Programming:** Properties (Top Down, Bottom Up, Optimal Substructures, Overlapping Subproblems).
- **Graph Algorithms :** Shortest Path Algorithms, Connected Components, Bridges
- **Advanced DS -** Trie, Segment Tree, Disjoint Set